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MARTIN AUDIO
LONDON

The Martin Experience

This equipment conforms to the requirements of the EMC Directive 89/336/EEC, amended by 92/31/EEC and 93/68/EEC and the requirements of the Low Voltage Directive 73/23/EEC, amended by 93/68/EEC.

Standards Applied	EMC	Emission	EN55103-1:1996
		Immunity	EN55103-2:1996
	Electrical Safety		EN60065:1993

1 INTRODUCTION

Thank you for purchasing a Martin Audio Wavefront Professional Series system. The Wavefront Professional Series is a range of powerful yet compact loudspeakers designed to suit a variety of professional applications. The trapezoid shape of the enclosures allows them to be used singly or arrayed in multiples. Specific uses include live sound reinforcement, theatre sound and audio-visual events.

2 UNPACKING

Each Martin Audio loudspeaker is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the system, examine it carefully for any signs of transit damage and inform your dealer if any such damage is found. It is suggested that you retain the original packaging so that the system can be repacked at a future date if necessary.

Please note that Martin Audio and its distributors cannot accept any responsibility for damage to any returned product through the use of non-approved packaging.

3 OVERVIEW

The Wavefront Professional Series consists of the W0.5 and WM0.5 miniature full-range systems, the W1, W2 and W3 compact full-range systems and the WS2A sub-bass. For optimum performance it is recommended that Wavefront Professional Series loudspeakers are used with the WX3A System Controller or an appropriate digital controller such as the Martin Audio DX1. Please refer to the controller user guide for information on connections and limiter settings.

3.1 W0.5 and WM0.5

The W0.5 is a miniature high performance loudspeaker suited to a variety of applications from sports bars to live sound infill. It is a passive two-way system featuring an 8" (200mm) bass driver and a 1" (25mm) ferrofluid cooled HF driver on a 70 x 50 degree horn.
The WM0.5 is a wedge monitor version of the W0.5, utilising the same drive units and horn. In its wedge configuration, the horn of the WM0.5 exhibits a 50 x 70 degree dispersion pattern to increase the listening window in the vertical plane. The base of the WM0.5 is provided with threaded steel inserts for use with a tripod or for mounting upside down close to a ceiling.

3.2 W1

The W1 is an ultra-compact passive two-way system with a high output capability for its small size. Featuring a 10" (250mm) bass driver and 1" (25mm) compression driver on a 70 x 40 degree horn, it is particularly useful in distributed sound and audio-visual appplications.

3.3 W2

The W2 is a powerful stand-alone system combining dynamic full-frequency performance with exceptional articulation. Designed to meet the industry standard requirement for a 12" (305mm) bass driver plus 70 x 40 horn combination, the W2 can be configured as either an active or passive system by means of a switch on the rear of the enclosure.

3.4 W3 and W3P

The W3 is an innovative full-range system achieving true three-way performance from an enclosure only 28" (711mm) high. The low frequency driver is a powerful 15" (380mm) device cooled by a heat exchange system to reduce power compression. Midrange is produced by a unique 6.5" (165mm) mid horn developed to overcome the power and distortion limitations of traditionally used large format compression drivers whilst high frequencies are produced by a 1" (25mm) compression driver. Mid and HF dispersion patterns are 65 x 40 degrees. The W3 is a three-way system designed for bi-amplification at its 650Hz low/mid crossover point. A fully passive version, the W3P is available for situations which require simplicity and reduced amplifier count.

3.5 WS2A

Where a Wavefront Professional Series enclosure requires additional low frequency enhancement, the WS2A will extend the power bandwidth of the system to below 35Hz. It utilises twin high power 15" (380mm) drivers with 4" (100mm) voice coils in an optimally tuned compact reflex enclosure.

NOTE:

Passive systems such as the W0.5, WM0.5, W1, W2 (in passive mode) and W3P may be used without a WX3A controller provided recommended amplifier power is not exceeded and care is taken to avoid amplifier clipping. Use of an optional WX3A controller with its system specific low frequency EQ and built in limiters will result in improved bass response and system protection.

4 SAFETY FIRST

It is important that loudspeaker systems are used in a safe manner. Please take some time to review the following points concerning safe use of Wavefront Professional Series loudspeakers.

Professional loudspeakers are capable of producing extremely high sound levels and should be used with care. Hearing loss is cumulative and can result from levels above 90dB if people are exposed for a long period. Never stand close to loudspeakers driven at high level.

4.1 Tripod Mounting

The W0.5, W1, W2 and W3 incorporate a pole mounting socket to facilitate mounting on tripod stands. When using stands, the following precautions are advised:

Ensure that the stand will support the weight of the speaker by checking the stand manufacturers rating.

Make sure that the stand is placed on a level surface and that its legs are fully extended.

Do not place more than one speaker on each stand.

Run cables so that they do not present a trip hazard which could pull the speaker over.

When used outdoors in the wind, it may be necessary to add some weight to the base of the stand.

When using a pole mount with a sub-bass system such as the WS2A, observe similar precautions.

4.2 Stacking

Ensure that the floor or stage is level and solid.

Do not stack speakers too high outdoors where winds could topple the stack.

Be aware that speakers producing very high power levels can move or creep. To avoid this, place friction material between the floor and speaker and between each speaker.

4.3 Rigging and Suspension

<u>WARNING:</u> Suspending the system should only be done by qualified personnel following safe rigging practices. Secure fixings to the building structure are vital. Seek help from architects, structural engineers or other specialists if in any doubt.

The W0.5, WM0.5, W1, W2 and W3 are provided with threaded inserts to allow the suspension of a single enclosure. **Never suspend one enclosure from another to form an array or cluster using these fittings.** The W2 and W3 are provided with optional MAN flying points for array construction.

The common practice of using commercially available eye bolts for suspension should only be undertaken with great caution. Eye bolts are strongest along the thread axis. Angling the enclosures will result in an angle pull and it is important to use eye bolts that are safe in these circumstances. Only forged shoulder eye bolts should be considered and it is important that the thread length is at least 30mm. A flat washer should be inserted between the eyebolt and the enclosure. **Formed eye bolts i.e. those which are formed from a steel rod bent into an eye should be avoided.**

5 AMPLIFICATION

Wavefront Professional Series loudspeakers are designed to be used with professional power amplifiers capable of producing the following power outputs into 4 ohms:

W0.5 & WM0.5	300-400W
W1	300-400W
W2	400-600W
W3	400-600W
W3P	550-800W
WS2	550-800W

Care should be taken to avoid amplifier clipping. It is important to understand that a low power amplifier driven into clipping is more likely to damage a loudspeaker than a higher power amplifier used within its ratings. This is because music signals have a high peak-to-average "crest" factor. When an amplifier is severely overdriven, its output waveform is clipped (its peaks are squared off) – reducing the crest factor. In extreme cases, the waveform can approach that of a square wave. An amplifier is normally capable of producing far more power under these conditions than its undistorted rated power output.
The use of very high power amplifiers with outputs greater than those recommended is discouraged.

Care should be taken to avoid switch-on surges, which can result in momentary power peaks in excess of specified ratings. When powering up a sound system it is important to switch on the amplifiers after the mixer and control electronics have stabilised. When powering down the system, reverse the sequence and switch off the amplifiers first.

6 CONNECTIONS

Each connector panel has two Neutrik Speakon connectors wired in parallel with each other. The second connector allows use of a short link lead to power another parallel loudspeaker. The connectors are wired as follows:

NL4 Pin	W0.5/WM0.5 W1/W2 Passive/W3P/WS2	W2 Active W3
1-	Input -ve	Low -ve
1+	Input +ve	Low +ve
2-	N/C	(Mid)/High -ve
2+	N/C	(Mid)/High +ve

7 CABLE LENGTHS

When connecting loudspeaker systems to an amplifier, it is recommended that the return resistance of the cable used is less than one tenth of the nominal impedance of the system or systems in parallel. The table below gives an indication of the maximum permissible cable runs for various conductor cross-sectional areas.

Conductor CSA	Maximum Cable Run		
	4 ohms	8 ohms	16 ohms
1.0mm^2	11m	22m	44m
1.5mm^2	17m	34m	68m
2.0mm^2	22m	44m	88m
2.5mm^2	29m	58m	116m
4.0mm^2	44m	88m	176m
6.0mm^2	66m	132m	264m

8 SYSTEM CONFIGURATIONS

The W0.5, WM0.5, W1, W2 and W3 may be used to cover the full-frequency range – either distributed singly or arrayed in multiples. The WX3A and DX1 controllers provide appropriate system-specific low frequency equalisation for full-frequency operation. Where additional low frequency output is required, a WS2A sub-bass system driven from a separate amplifier fed from the sub-bass output of the controller can be added.

Wavefront Professional Series loudspeakers combined with the appropriately configured controller exhibit an essentially flat on-axis frequency response. Equalisation to compensate for a particular acoustic environment may be performed where required. Where loudspeakers are arrayed, they may benefit from a degree of equalisation to reduce the effect of the low/mid build up and tilting of the response inherent in the use of multiple arrayed enclosures.

9 WARRANTY

Martin Audio Wavefront Professional Series products are warranted against manufacturing defects in materials or craftsmanship over a period of 5 years from the date of original purchase. During the warranty period Martin Audio will, at it's discretion, either repair or replace products which prove to be defective provided that the product is returned in its original packaging, shipping prepaid, to an authorised Martin Audio service agent or distributor.

Martin Audio Ltd. cannot be held responsible for defects caused by unauthorised modifications, improper use, negligence, exposure to inclement weather conditions, act of God or accident, or any use of this product that is not in accordance with the instructions provided by Martin Audio.
Martin Audio is not liable for consequential damages.

This warranty is exclusive and no other warranty is expressed or implied. This warranty does not affect your statutory rights.

10 TECHNICAL SPECIFICATIONS

W0.5/WM0.5

TYPE (W0.5)	Ultra-compact 2-way passive trapezoid
TYPE (WM0.5)	Miniature 2-way passive stage monitor
FREQUENCY RESPONSE	70Hz-18kHz ± 3dB
LOW FREQUENCY LIMIT	-10dB @ 50Hz
DRIVERS	8” (200mm) LF
	1” (25mm) exit HF compression driver
RATED POWER	125W AES, 500W peak
RECOMMENDED AMPLIFIER	300-400W into 4 ohms
SENSITIVITY	94dB
MAXIMUM SPL	114dB continuous, 120dB peak
IMPEDANCE	8 ohms nominal
DISPERSION (W0.5)	70 degs horizontal x 50 degs vertical (-6dB)
DISPERSION (WM0.5)	50 degs horizontal x 70 degs vertical (-6dB)
CROSSOVER	3kHz, passive
CONNECTORS	2 x Neutrik Speakon NL4
FITTINGS (W0.5)	10 x M8 threaded inserts
	1 x pole mounting socket
FITTINGS (WM0.5)	4 x M8 threaded inserts
DIMENSIONS (W0.5)	(W) 278mm x (H) 391mm x (D) 264mm
	(W) 10.9ins x (H) 15.4ins x (D) 10.4ins
WEIGHT (W0.5)	10kg (22lbs)
DIMENSIONS (WM0.5)	(W) 390mm x (H) 270mm x (D) 334mm
	(W) 15.3ins x (H) 10.6ins x (D) 13.2ins
WEIGHT (WM0.5)	9kg (19.8lbs)
SHIPPING DIMENSIONS(W0.5)	(W) 490mm x (H) 560mm x (D) 300mm
	(W)19.3ins x (H) 22.0ins x (D) 11.8ins
SHIPPING WEIGHT(W0.5)	22kg (48.5lbs)
SHIPPING DIMENSIONS (WM0.5)	(W) 500mm x (H) 360mm x (D) 404mm
	(W) 19.7ins x (H) 14.2ins x (D) 15.6ins
SHIPPING WEIGHT(WM0.5)	11kg (24.2lbs)

W1

TYPE	Ultra-compact 2-way passive trapezoid
FREQUENCY RESPONSE	75Hz-18kHz ± 3dB
LOW FREQUENCY LIMIT	-10dB @ 55Hz
DRIVERS	10” (250mm) LF
	1” (25mm) exit HF compression driver
RATED POWER	150W AES, 600W peak
RECOMMENDED AMPLIFIER	300-400W into 4 ohms
SENSITIVITY	97dB
MAXIMUM SPL	118dB continuous, 124dB peak
IMPEDANCE	8 ohms nominal
DISPERSION	70 degs horizontal, 40 degs vertical (-6dB)
CROSSOVER	2.2kHz, passive
CONNECTORS	2 x Neutrik Speakon NL4
FITTINGS	12 x M8 threaded inserts
	1 x pole mounting socket
DIMENSIONS	(W) 335mm x (H) 487mm x (D) 325mm
	(W) 13.2ins x (H) 19.2ins x (D) 12.8ins
WEIGHT	14.5kg (32lbs)
SHIPPING DIMENSIONS	(W) 420mm x (H) 600mm x (D) 420mm
	(W) 16.5ins x (H) 23.6ins x (D) 16.5ins
SHIPPING WEIGHT	16kg (35.3lbs)

W2

TYPE	Compact 2-way trapezoid, switchable active/passive
FREQUENCY RESPONSE	60Hz-18kHz ± 3dB
LOW FREQUENCY LIMIT	-10dB @ 50Hz
DRIVERS	12” (305mm) / 3” (75mm) voice coil 1” (25mm) exit HF compression driver
RATED POWER	LF/FR: 300W AES, 1200W peak HF: 60W AES, 240W peak
RECOMMENDED AMPLIFIER	400-600W into 4 ohms
SENSITIVITY	LF/FR: 98dB, HF: 106dB
MAXIMUM SPL	122dB continuous, 128dB peak
IMPEDANCE	F/R, LF & HF: 8 ohms nominal
DISPERSION	70 degs horizontal, 40 degs vertical (-6dB)
CROSSOVER	1.5kHz active or internal passive
CONNECTORS	2 x Neutrik Speakon NL4
FITTINGS	8 x M8 1 x pole mounting socket 2 x MAN blanking plates 2 x rear kelp fittings
DIMENSIONS	(W) 365mm x (H) 554mm x (D) 364mm (W) 14.4ins x (H) 21.8ins x (D) 14.3ins
WEIGHT	24kg (53lbs)
SHIPPING DIMENSIONS	(W) 460mm x (H) 660mm x (D) 460mm (W) 18.1ins x (H) 26ins x (D) 18.1ins
SHIPPING WEIGHT	24kg (52.9lbs)

W3

TYPE	Compact bi-amplified 3-way trapezoid
FREQUENCY RESPONSE	55Hz-18kHz ± 3dB
LOW FREQUENCY LIMIT	-10dB @ 45Hz
DRIVERS	15” (380mm) / 3” (75mm) voice coil
	6.5” (165mm) horn loaded mid-range
	1” (25mm) exit HF compression driver
RATED POWER	LF: 400W AES, 1600W peak
	MF/HF: 150W AES, 600W peak
RECOMMENDED AMPLIFIER	400-600W into 4 ohms
SENSITIVITY	LF: 100dB
	MF/LF: 104dB
MAXIMUM SPL	125dB continuous, 131dB peak
IMPEDANCE	LF: 8 ohms nominal
	MF/HF: 16 ohms nominal
DISPERSION	65 degs horizontal, 40 degs vertical (-6dB)
CROSSOVER	650Hz active, 3.3kHz internal passive
CONNECTORS	2 x Neutrik Speakon NL4
FITTINGS	8 x M8, 4 x M6 threaded inserts
	1 x pole mounting socket
	2 x MAN blanking plates
	2 x rear kelp fittings
DIMENSIONS	(W) 435mm x (H) 708mm x (D) 425mm
	(W) 17.1ins x (H) 27.9ins x (D) 16.7ins
WEIGHT	31.5kg (69lbs)
SHIPPING DIMENSIONS	(W) 550mm x (H) 790mm x (D) 550mm
	(W) 21.7ins x (H) 31.1ins x (D) 21.7ins
SHIPPING WEIGHT	36kg (79.4lbs)

WS2A

TYPE	Compact sub-bass
FREQUENCY RESPONSE	38Hz-100Hz ± 3dB with controller
LOW FREQUENCY LIMIT	-10dB @ 30Hz
DRIVERS	2 x 15” (380mm) / 4” (100mm) voice coil
RATED POWER	800W AES, 3200W peak
RECOMMENDED AMPLIFIER	550-800W into 4 ohms
SENSITIVITY	99dB
MAXIMUM SPL	126dB continuous, 132dB peak
IMPEDANCE	4 ohms nominal
CROSSOVER	100Hz active
CONNECTORS	2 x Neutrik Speakon NL4
DIMENSIONS	(W) 572mm x (H) 827mm x (D) 585mm (W) 22.5ins x (H) 32.5ins x (D) 23.0ins
WEIGHT	60kg (132lbs)
SHIPPING DIMENSIONS	(W) 600mm x (H) 850mm x (D) 740mm (W) 23.6ins x (H) 33.5ins x (D) 29.1ins
SHIPPING WEIGHT	64kg (141.1lbs)

Due to our policy of continuous improvement all specifications are subject to change without notice.

Wavefront Professional Series
W0.5/WM0.5/W1/W2/W3/WS2A

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Wavefront Professional Series

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User's Guide

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